AI in Irrigation

Intelligent irrigation systems have recently gained importance in terms of efficient cultivation of plants and the correct use of water on earth. Therefore, studies, such as plant growth modeling, irrigation modeling, and control continue, in this field. Plant growth modeling creates the infrastructure for the most accurate irrigation and fertilization activities in terms of crop yield. In addition, irrigation modeling and control is the efficient use of water resources to irrigate the entire plant system adequately.

Machine learning (ML) methods are very suitable for modeling and prediction, and many studies have been done in the literature for plant growth modeling and irrigation. On the other hand, control theory methods ensure that the desired irrigation amount is made precisely. In addition, remote control approaches are an important step that facilitates irrigation systems.

No.	Algorithms	Method of evapotranspiration / desired calculation	Other Technologies
1.	PLSR and other regression Algorithms	Evapotranspiration model	Sensors for data collection, IOT Hardware Implementation
2.	Artificial Neural Network based control system	Evapotranspiration model	Sensors for measurement of soil,temperature,wind speed, etc.
3.	Fuzzy Logic	FAO Penman-Monteith method	–
4.	ANN (multilayer neural model), Levenberg Marquardt, Backpropagation	Penman–Monteith method	–
5.	Fuzzy Logic	–	WSN, Zigbee
6.	ANN Feed Forward, Backpropogation	–	–
7.	Fuzzy Logic Controller	Penman–Monteith method	Wireless sensors
8.	Machine Learning algorithm	–	Sensors, Zigbee, Arduino microcontroller